LOCAL CONCERNS ASSESSMENT OF THREE POTENTIAL RESERVOIR SITES IN THE LITTLE BOW RIVER BASIN

Prepared For

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EXECUTIVE SUMMARY

Water demands in the Little Bow River Basin are increasing, particularly for irrigation purposes. Current water supplies presently restrict the development of agricultural land suitable for irrigation, even though suitable land is within pumping distance of the Little Bow River. To meet local demands for water, the feasibility of constructing a water storage reservoir is currently being investigated by the Planning Division of Alberta Environment. Initially, 41 potential reservoir sites were considered, of which four were selected for a detailed assessment. Three of the four sites were subsequently selected for a local concerns assessment. The three reservoir sites and their corresponding locations are:

- **Site LB1** - located on the Little Bow River near Frank Lake,
- **Site 7B1** - located on the Little Bow River below the confluence with Mosquito Creek, and
- **Site 7A** - located on the Little Bow River downstream of the Fireguard Road.

Beak Associates Consulting Ltd. (BEAK) was retained by Alberta Environment to interview landowners potentially affected at each of the three reservoir sites to identify their attitudes and concerns regarding the construction and development of a reservoir on or near their land.

This report documents and discusses the results of the landowner interviews. It will be used in conjunction with engineering feasibility studies and an environmental overview to select the most suitable reservoir site.

Forty-seven landowners were interviewed during a two-week period in late November and early December, 1985. An interview guideline was used to ensure that similar questions were asked of each landowner. Landowners were encouraged to provide additional comments so as to better identify their attitudes and concerns. Interview results were tabulated in such a manner as to protect the identity of individual landowners. The results are discussed below within five

categories: background information, potential impacts, landowner views, reservoir use, and project implementation.

Background Information

Background information was compiled to determine the number of people living at or near each of the three reservoir sites, the size of their farming operation, and the rural and urban communities to which they travel for services. Results showed that approximately 300 individuals would be potentially affected by reservoir construction at Sites 7B1 and 7A, as compared to approximately 100 individuals at Site LB1. Most landowners living at Sites 7B1 and 7A have lived there for more than 25 years, whereas most landowners have lived at Site LB1 for less than 10 years. Dryland farming is presently the major agricultural land use, although the demand for irrigation is increasing. At all three sites, mixed farming is the most common operation, with most farms being less than 640 acres (1 section) in size. Major communities in the area that support agriculture-related industry include Vulcan, High River, Nanton, and Claresholm.

Potential Impacts

Potential impacts were addressed to obtain information on the number of buildings and improvements and the amount of land that would be affected by reservoir construction. Twice as many buildings and improvements and four times the amount of land would be flooded at Sites 7B1 and 7A as at to Site LB1. Selection of Site LB1, however, would result in the greatest impacts on buildings and improvements relative to its size. For example, 50% of all landowners at Site LB1 would have their farms flooded compared to 17% at Site 7A and 15% at Site 7B1. Respondents at Sites 7B1 and 7A indicated approximately four times as many impacts as respondants at Site LB1. A number of landowners living in the river valley immediately downstream of one or more of the potential reservoir sites indicated a desire to be relocated, even though their farmsteads would not actually be flooded. Their concerns related to the potential danger of the dam giving way during a severe storm or earthquake, thus endangering the lives of their families and causing destruction of their property.

Landowner Views

Landowner views were obtained to determine the effect of the project on their farming operation and everyday life. The majority of landowners at all three sites were in favor of having a reservoir built in the Little Bow River Basin; however, landowners at Site LB1 were less in favor than landowners at Sites 7B1 and 7A. Only about 15 percent of the landowners at Site LB1 were in favor of having a reservoir built closest to their location as compared to approximately 70 percent of landowners in favor at Sites 7B1 and 7A. Landowners at all three sites felt that community benefits from reservoir construction would outweigh the drawbacks. The majority of landowners at Sites 7B1 and 7A were of the opinion that local irrigation farmers would benefit most from a reservoir whereas landowners at Site LB1 felt that downstream irrigators would receive the greatest benefit.

Reservoir Use

Landowners were asked about their opinions regarding important uses and proposed multiple uses for the reservoir, primarily associated with recreation development. Irrigation was ranked as the most important use of the reservoir. Landowners at Sites 7B1 and 7A were more in favor of recreation development than landowners at Site LB1. Half of the landowners at Site LB1 did not want any recreation development at all whereas only 20% of landowners at the other two sites were opposed to development. The majority of landowners at all sites were not in favor of development of country residences, private campgrounds, and boating marinas at the reservoir. Members of the High River Hutterite Colony (situated immediately downstream of Site LB1) and members of the Little Bow Hutterite Colony (situated within the 7B1/7A reservoir site) have serious concerns about <u>any</u> recreation development near their locations since it would severely conflict with their lifestyle.

Project Implementation

Most landowners believe that reservoir construction will begin in 3 to 5 years, although a considerable number of landowners from Sites 7B1 and 7A believe that construction will begin in less than two years. Most landowners want construction to proceed year round, although more than half of the landowners stated no seasonal preference. Concerning negotiations for land purchase by the government, approximately 50% of all landowners preferred to keep their land to the "take-line" (top of dam elevation), while approximately 25% preferred the government to purchase the land to the quarter section line around the reservoir.

Conclusions

In order to assess the relative social impacts of the proposed reservoir sites, the interview results were scaled using two subjective numerical rating systems. One system was used to rank physical impacts resulting from reservoir construction and the other system was applied to landowner views concerning reservoir construction.

The rating system used to compare physical impacts showed that there would be three times as many landowner impacts at Sites 7B1 and 7A as at Site LB1. This was largely due to the larger size of Sites 7B1 and 7A and the fact that similar land uses occur within each. The most important issues were the total number of individuals affected and the number of potentially flooded buildings, improvements, and land.

On the basis of the rating system used to compare landowner attitudes, it appeared that landowners at Site LB1 had a negative attitude towards reservoir construction that was equal in magnitude but opposite to the positive attitude of landowners at Sites 7B1 and 7A. This was largely attributed to a general perception by the majority of the landowners at all three sites that only the larger reservoirs would store enough water to significantly improve irrigation potential and provide substantial net benefits to the community. Important issues included attitude towards reservoir construction in principle, attitude towards reservoir construction nearest the landowner, and acceptable types and levels of recreation development.

The combined results of the two rating systems showed that while landowner impacts at Sites 7B1 and 7A would be greater the total than landowner impacts at Site LB1, landowners at the larger sites nonetheless appeared to be more in favor of having a reservoir.

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1.0 INTRODUCTION

1.1 Background

Until the mid 1970's, two diversions from the Highwood River provided reliable supplies of good quality water to the Little Bow River Basin for livestock, domestic, municipal, and irrigation purposes. With the advent of mechanized irrigation sprinkler systems and the recognized benefits of irrigation, however, water demands began to increase to the point that water shortages occurred. These water shortages have restricted the development of agricultural land suitable for irrigation, even though this land is within pumping distance of the Little Bow River. In 1979, the Little Bow Water Users' Association was formed to express the concerns of local landowners to Alberta Environment.

In response to information presented by the Little Bow Water Users' Association and in recognition of the general need for an assessment of the Little Bow River Basin, the Planning Division of Alberta Environment began preliminary investigations. These investigations included an analysis of water supplies, water uses, and water quality in the basin and a preliminary assessment of water management and development options. As part of this process, the feasibility of constructing a water storage reservoir at various sites was considered.

Initially, 41 potential reservoir sites were investigated, of which four were selected for detailed assessment. Of these four sites, three were selected for a local concerns assessment upon recommendation of the Little Bow Steering Advisory Committee. Beak Associates Consulting Ltd. (BEAK) was retained in November, 1985, to conduct the assessment under contract to Alberta Environment Planning Division.

1.2 Study Purpose and Objectives

The purpose of the study was to interview the landowners who would be directly affected at each of the three reservoir sites to identify their attitudes and concerns regarding the construction and development of a reservoir on or near their land.

Specifically, the study's objectives were as follows:

- to obtain background information about the number of people living at or near each of the three reservoir sites, the size of their farming operati and the rural and urban communities to which they travel for services;

- to determine the potential impacts on landowners caused by the construction of a reservoir on or near their land;

- to compile landowner views regarding the effect of the project on their farming operation and everyday life; and

- to assess landowner attitudes regarding implementation of the project and proposed uses for the reservoir.

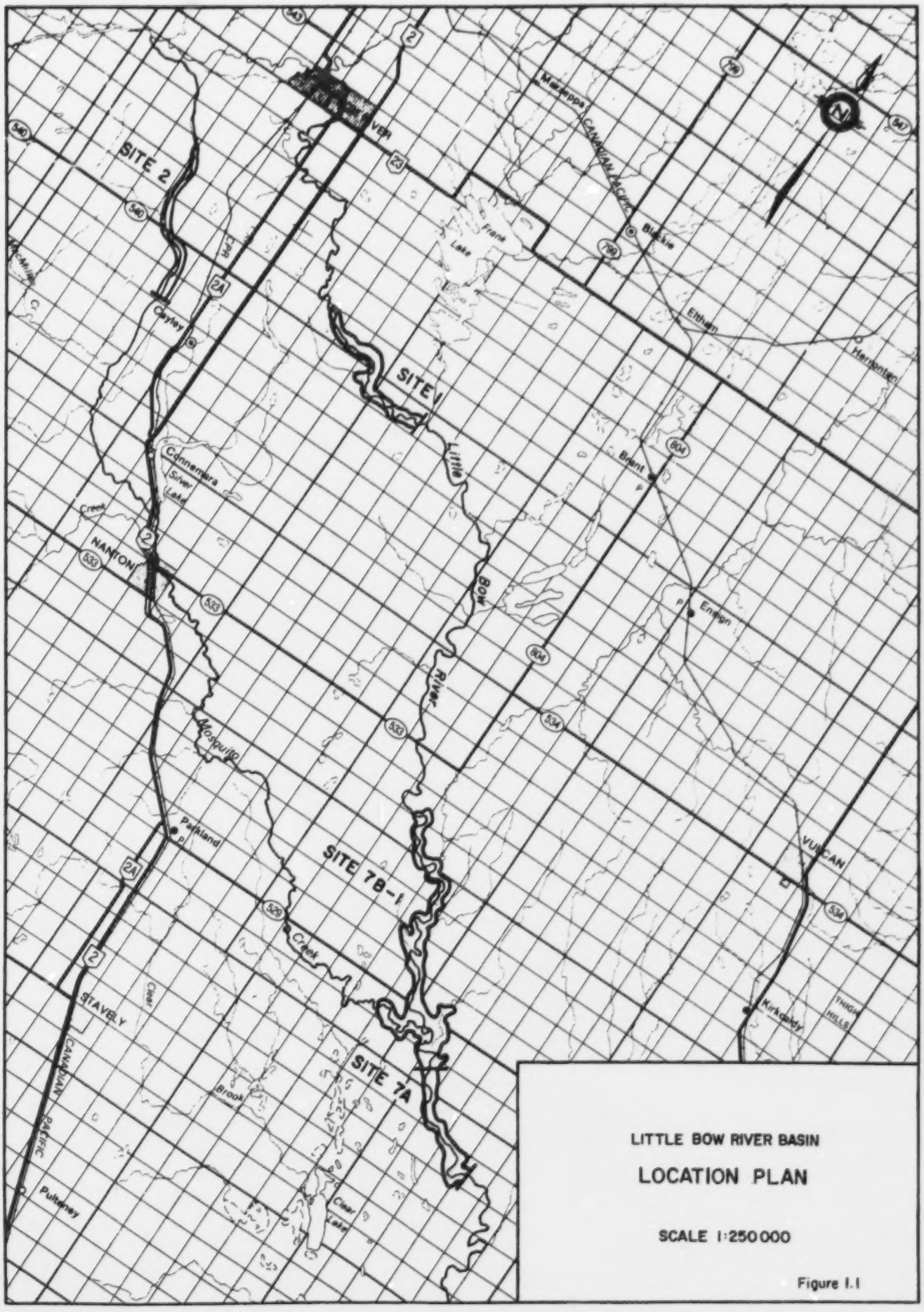
This report documents the findings of the landowner interviews and will be used in conjunction with the engineering feasibility studies and environmental overview study to select the most suitable reservoir site.

1.3 Study Area

The study area lies within the Little Bow River Basin (Figure 1.1), which has a total catchment area of about 570,000 ha (2200 square miles). The Little Bow River and Mosquito Creek originate in the hills north and west of Nanton and flow southeast, joining the Oldman River east of Lethbridge.

Dryland farming is currently the major agricultural land use in the basin. Some sprinkler irrigation is also practiced, and the demand for this type of irrigation is increasing. Cattle, sheep, hogs, and fowl are raised on some farms.

The major communities in the area are Vulcan, High River, Nanton, and Claresholm. Other smaller service centers include Carmangay, Stavely, Cayley, Champion, and Parkland. These communities support agriculture-related business, as well as other commercial activities.


SITE 2
SITE V
SITE 7B-1
SITE 7A
NANTON
STAVELY
VULCAN
Carseland
Bassano
Blackie
Ethlan
Brant
Enchant
Parkland
Pulteney
Clear Lake
Frank Lake
Little Bow River
Mosquito Creek
Clear Creek
Kirkcaldy
THIGH HILLS
CANADIAN PACIFIC
LITTLE BOW RIVER BASIN
LOCATION PLAN
SCALE 1:250000
Figure 1.1

Background data regarding the location and size of each potential reservoir are presented in Table 1.1 All three potential water storage reservoir sites are located in the upper reaches of the basin, upstream of the Travers Reservoir, as follows:

- **Site LB1 -** Little Bow River near Frank Lake (Figure 1.2)
- **Site 7B1 -** Little Bow River below the confluence with Mosquito Creek (Figure 1.3)
- **Site 7A -** Little Bow River downstream of the Fireguard Road (Figure 1.4).

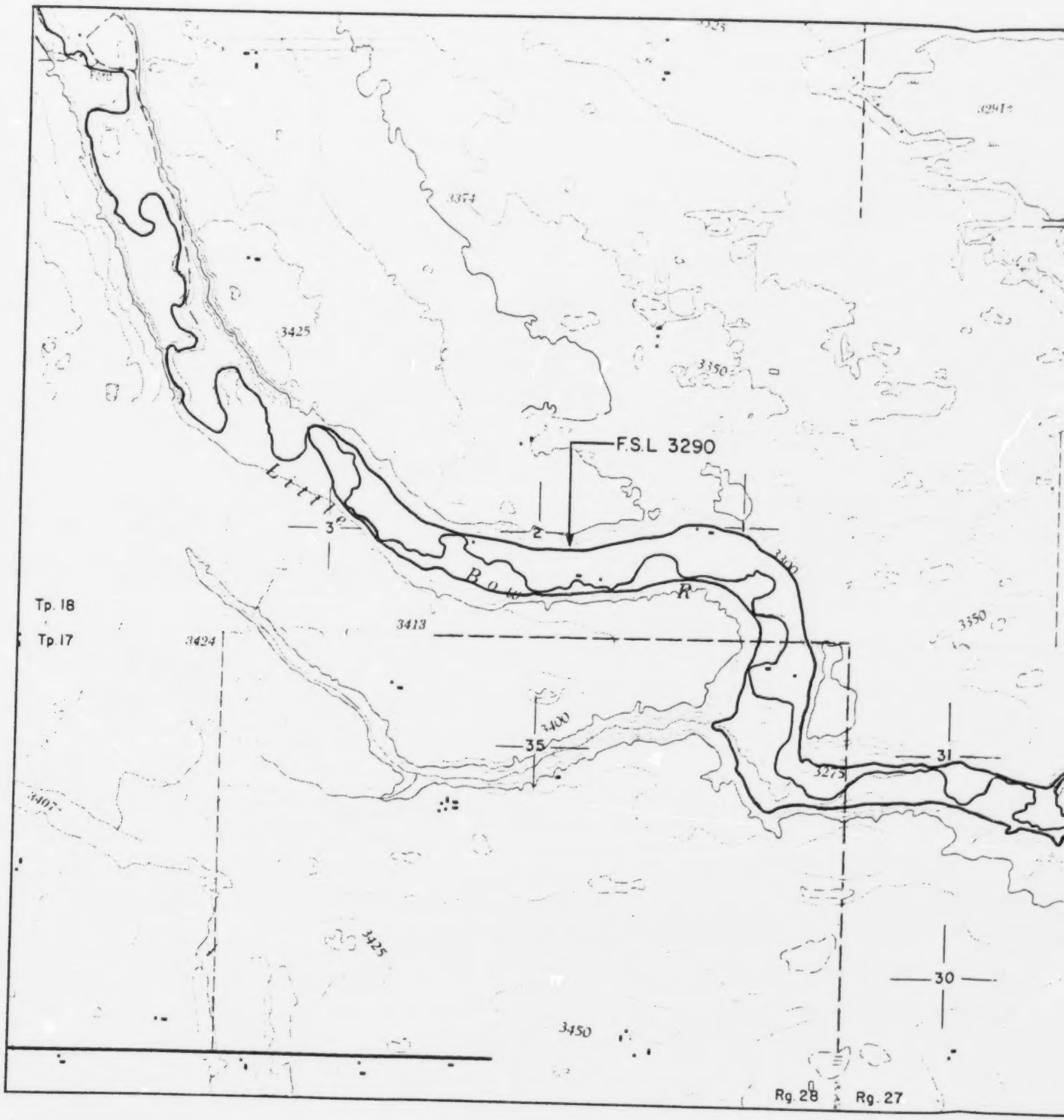
Table 1.1 Reservoir Descriptions

	Site LB1	Site 2	Site 7B1	Site 7A
Dam Location	NE32-17-24-W4	SE26-17-29-W4	NW5-15-25-W4	W27-14-25-W4
Height of Dam	17 m	19.5 m	25 m	27 m
Full Supply Level (FSL)[a]	1002.8 m	1066.8 m	964.7 m	962 m
Total Storage at FSL	21.28 x $10^6 m^3$	17.76 x $10^6 m^3$	86.30 x $10^6 m^3$	86.30 x $10^6 m^3$
Flooded Area at FSL[b]	328 ha	243 ha	approx. 1020 ha	approx. 1060 ha

a Full supply level is presented as the number of meters above sea level.

b Flooded area at FSL for Sites 7B1 and 7A was calculated using a grid overlay technique on 1:20,000 scale photomosaics.

Source: Adapted from W-E-R Engineering Ltd., 1985.


F.S.L 3290
Little
Bow
R
3425
3374
3350
3413
3424
3400
3407
3450
3241±
3275
Tp. 18
Tp. 17
Rg. 28
Rg. 27
35
31
30
2
3

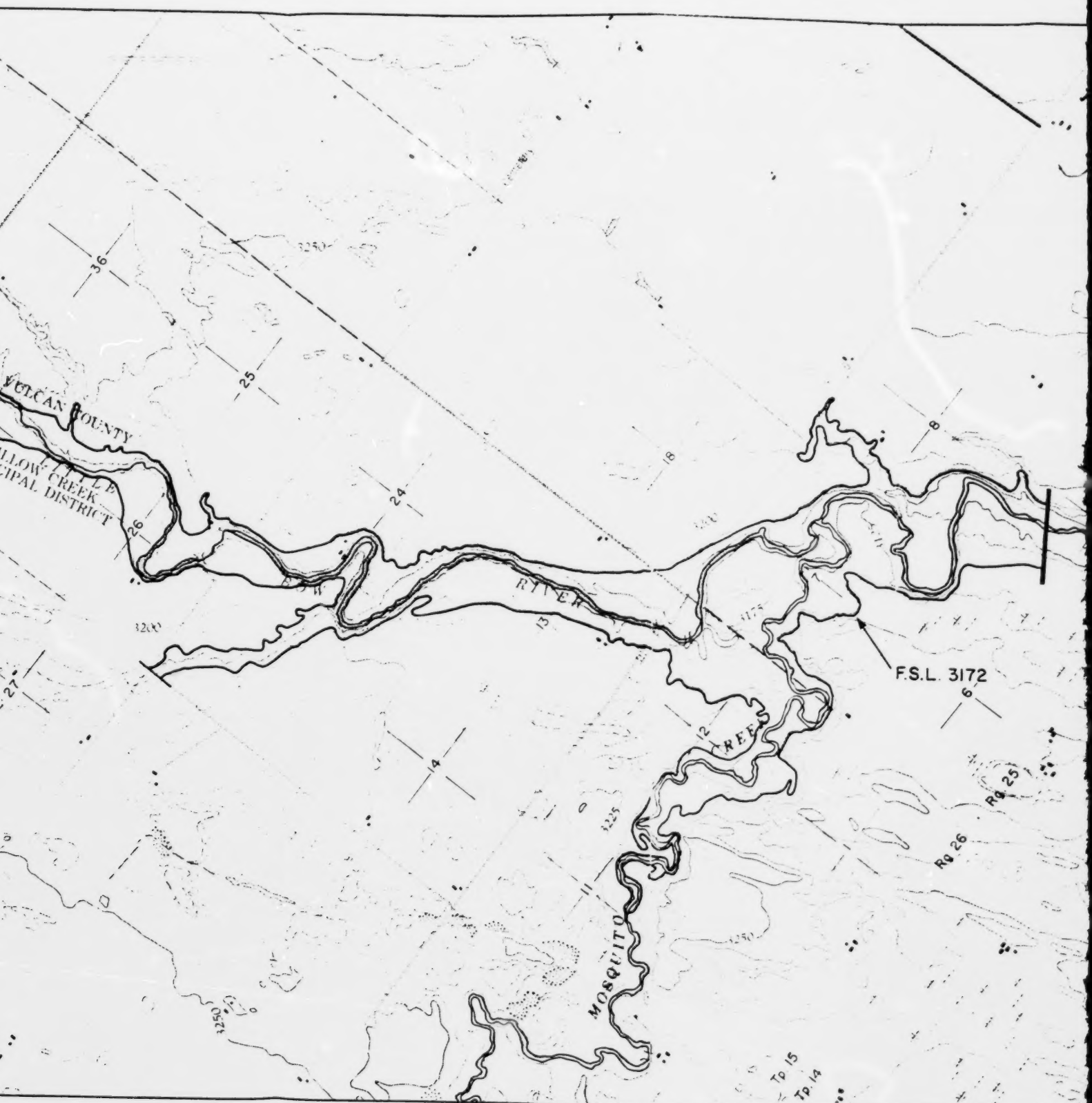
LITTLE BOW RIVER BASIN

SITE LBI

SCALE 1:40000

Figure 1.2

E34
1250
Rg.27
Rg.26
Tp.16
Tp.15
3325
3112
3300
9
3
4
8
34


VULCAN COUNTY
RIVER
CREEK
MOSQUITO
F.S.L. 3172
Rg 25
Rg 26
Tp 15
Tp 14
36
25
24
26
27
18
8
6
12
14
11
3250

LITTLE BOW RIVER BASIN

SITE 7B1

SCALE 1:40000

Figure 13

YUCAN COUNTY
WILLOW CREEK
MUNICIPAL DISTRICT
36
35
25
26
24
34
4
3
2
27
14
T. 16
T. 15
3300
3250

25
24
18
8
4
7
31
6
12
14
11
CREEK
MOSQUITO
Rg. 25
Rg. 26
Tp. 15
Tp. 14
3200
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3225
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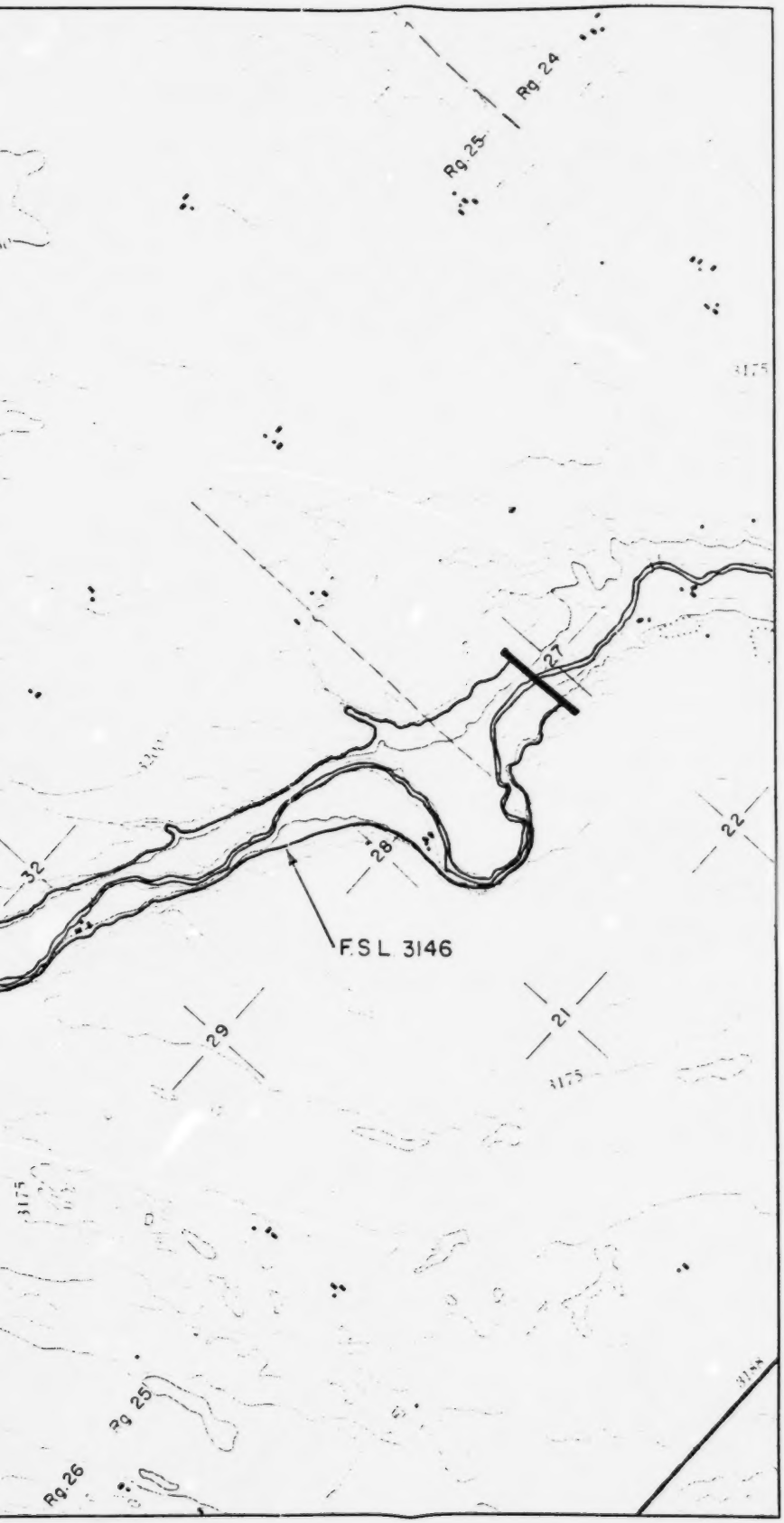

LITTLE BOW RIVER BASIN

SITE 7A

SCALE 1:40000

Figure 1.4

2.0 METHODS

2.1 Landowner Interviews

Forty-seven landowners were interviewed during a two-week period in late November and early December, 1985 (Appendix A). An additional 15 landowners who were approached for interviews declined either because they were represented by another landowner or because they considered the impacts to their land insignificant. Approximately five interviews were carried out per day, allowing an hour-and-a-half to two hours for each interview including travel time.

An Interview Guideline was used to ensure that each landowner was asked similar questions. A sample copy of the Guideline is provided in Appendix B. Landowners were encouraged to provide additional information where it was considered useful in helping to better identify their concerns.

To ensure that individual respondents remained anonymous, the interview results were tabulated in percentages, e.g., 80% of the landowners interviewed ranked stockwatering and domestic use of water as their most important use, and 20% ranked irrigation use of water as most important. Following completion of the study, the completed interview guideline forms will be destroyed.

2.2 Tabulations

The Interview Guideline was divided into five sections: background information, potential impacts, landowner views, reservoir use, and project implementation. Interviews were conducted in four areas as follows:

- Site LB1 (8 interviews)
- Site 7B1 (9 interviews)
- Site 7A (5 interviews)
- Site 7B1 & 7A Overlap Area (25 interviews)

Subsequently, the results of the 25 interviews conducted in the Overlap Area were added to both the interview results of Site 7B1 and Site 7A, resulting in 34 (9+25) landowner interviews for Site 7B1 and 30 (5+25) interviews for Site 7A. This was done to allow a valid comparison of results among the three potential reservoir sites.

The landowner responses to each question were presented as totals or percentages except for the question regarding the importance of the potentially different water uses (Table 3.4.1). The results for this question were tabulated as described below. Each landowner interviewed was asked to rank the following water uses on a scale of one to five:

- irrigation
- stockwatering/domestic use
- municipal water supply
- recreation development
- wildlife utilization

The water use that the landowner perceived to be most important was assigned a rank of one, and the least important use, a rank of five. Each rank was assigned a numerical value as follows:

Rank	Numerical Value
1	5
2	4
3	3
4	2
5	1

Values were calculated for each water use by multiplying the number of times a particular ranking had been chosen by the corresponding numerical value and summing the results. For example, if 10 landowners at Site 7B1 assigned municipal water supply a rank of 4, it was given a numerical value of 10 x 2 =20. Each water use score was divided by the sum of all water use scores to obtain a percent of the total. Water use values and percentages were used to determine the importance of a given water use at a specific site.

2.3 Interview Biases

Due to the subjective nature of many of the interview guideline questions, there are inherent biases in the results. These are identified below for each of the major interview guideline topics. The reader is encouraged to refer to this section when reading the results and discussion section (Section 3.0).

2.3.1 Background information

- When asked how many family members were dependent on their operation, some landowners included family members not living in the area or not working on the farm (such as university students) while other landowners did not.

- When asked which urban communities people travelled to for services, some landowners responded more thoroughly than others.

2.3.2 Potential impacts

- Some landowners gave a more complete list than others of buildings or improvements that could be affected by flooding, including gardens and fences (which were not on the Interview Guideline list).

- Some landowners identified more effects than others when discussing how the reservoir could affect their farming operation. Similar responses were grouped together. For example, the "loss of land" heading includes loss of lands described as farmland, cropland, grain land, prime land, and pasture.

- When asked how a potential reservoir site could affect farm development plans, some landowners provided more detail than others. Additional information was placed into the most suitable category. For example, the "stalled plans for construction of buildings and improvements" heading included bridge construction, upgrading farm buildings, new hog and chicken barns, and new shop construction.

2.3.3 Landowner views

- When landowners were asked whether they favored a reservoir being built near to them, despite possible loss of land, some landowners answered that they were neutral or undecided. It appeared from additional comments they made that in a number of cases, their position on the issue was dependent upon the level of compensation they would receive. This, however, was not always stated.

- When asked how the community could benefit from a reservoir, more than one benefit was identified by some respondents. Totals, therefore, do not add up to the number of affected landowners.

2.3.4 Reservoir use

- Ranking of water uses depended on the type of farming operation of the landowner. For example, if a landowner had a livestock operation, stockwatering was usually ranked as the most important water use.

- Two landowners did not answer the question regarding the potential ways in which the reservoir could be used for recreation. One landowner had no concern for reservoir use since he does not live in the area and leases the land to a local farmer. The other landowner would be forced to relocate, and would thus have no apparent use for the reservoir.

- Some landowners added conditional statements to their yes and no responses concerning reservoir use, while other landowners simply answered yes or no. It is possible that individuals from both groups could feel the same way; however, one merely gave a more thorough response.

2.4 Tabulation Bias

In tabulating the results, each landowner response was considered equally regardless of whether that particular landowner represented 2 individuals or 60 or whether he stood to lose his farmstead and 80% of his cropland or just a few acres of marginal pasture. Therefore, it must be realized that while the majority of the landowners at a particular site may be in favor of reservoir construction, this may represent 5 or 6 highly impacted landowners who are opposed and 28 marginally affected landowners who are in favor.

3.0 RESULTS AND DISCUSSION

The interview results are presented in a series of tables. Each table documents the results of four to ten questions. Key findings from each table are listed in bullet form on the page immediately preceding or following the table, usually allowing one comment per table subheading. One or two important summary comments are presented for each report section.

All values on the tables are presented as absolute numbers (i.e. total number of responses) whereas values in the corresponding discussions are largely presented in percentages. It should therefore be emphasized that, for each question, the following number of landowners were interviewed:

- 8 landowners at Site LB1,
- 34 landowners at Site 7B1, and
- 30 landowners at Site 7A.

Thus, if 50% of the landowners at Site LB1 were of a certain opinion and 50% of the landowners at Site 7B1 were of the same opinion, this would indicate a total of 4 responses and 17 responses for Sites LB1 and 7B1 respectively.

3.1 Background Information

Background information collected during the landowner interviews was used to determine the number of individuals that would be affected by reservoir construction, the length of time that landowners have lived in the area, the type and size of their farming operations, and the distances they travel to community services. This background information is tabulated and discussed in the following pages.

3.1.1 Number of individuals potentially affected

This section documents the number of different-sized family groups and the age class of family members and non-family members that could be potentially affected by reservoir construction at each site (Table 3.1.1). The results are summarized below.

- The number of potentially affected families was similar at Sites 7B1 and 7A (67 and 65, respectively). Substantially fewer families would potentially be affected at Site LB1 (20).

- The total number of potentially affected family members at Sites 7B1 and 7A was similar (263 and 251, respectively). This is almost three times that of Site LB1 (96 family members).

- Employed non-family members (hired help, farm hands, etc.) were most numerous at Sites 7B1 and 7A. The total man-years of employment add up to 13.5 at Site 7B1 and 12.5 at Site 7A. This is 6.5 times more than at Site LB1 (2.5).

- The greatest number of unemployed non-family members (renters, lessees) occurred at Site 7A (29), compared with 19 at Site 7B1 and 8 at Site LB1.

- The total number of potentially affected individuals at Sites 7B1 and 7A was similar (295.5 and 292.5, respectively) and substantially greater than the total number that would be affected at Site LB1 (106.5).

- The percentage of individuals affected, including non-family members living on the land, was the same at Sites 7B1 (42.7%) and 7A (42.3%) but substantially less at Site LB1 (15%).

The greatest number of individuals potentially affected by reservoir development occurred at Sites 7B1 and 7A. The similarity in the number of individuals affected at these two sites was due to their large area of overlap.

Table 3.1.1 **Number of Individuals Potentially Affected by the Construction of a Reservoir at Three Potential Reservoir Sites in the Little Bow River Basin**

	LB1[a]	7B1[b]	7A[b]
Size Class of Family Unit			
Single family	6	17	13
Two families	1	10	8
Three families	0	4	6
More than three families	1[a]	3[b]	3[b]
Total Number of Families	**20**	**67**	**65**
Age Class of Family Members			
No. of children under age 7	9	28	39
No. of youth aged 7 to 17	28	49	43
No. of adults aged 18 or over	59	186	169
Total Number of Family Members	**96**	**263**	**251**
Total Non-Family Members Employed (estimated as man-years)	**2.5**	**13.5**	**12.5**
Total Non-Family Members Living on Land	**8**	**19**	**29**
Total No. of Individuals Affected	**106.5**	**295.5**	**292.5**
Percentage of Individuals Affected	**15%**	**43%**	**42%**

[a] At Site LB1 there was one family group, a Hutterite colony, with 12 families making up the group.

[b] At Sites 7B1 and 7A there were two family groups with five families making up the group and one family group with thirteen families (another Hutterite colony) making up the group.

3.1.2 Number of Years of Residency

Table 3.1.2 shows the number of years of landowner residency and relative land location in the Little Bow River Basin. The results are summarized below.

- Over 80% of landowners at Site 7A have lived in the region more than 26 years. This compares with 76% at Site 7B1 and 50% at Site LB1. At Sites LB1 and 7B1, approximately 25% of the landowners interviewed have lived in the area for more than 50 years, whereas at Site 7A, 36% of the landowners interviewed have lived in the area for more than 50 years.

- More than 75% of all landowners interviewed, at each site, live near or at the reservoir location. The remaining landowners live in nearby towns.

- At Sites 7A and 7B1, more than 40% of landowners living at their farm residence have lived there for more than 26 years. At Site LB1, fewer than 20% of the landowners have lived there for the same period.

- At Sites 7B1 and 7A, 11% and 15%, respectively, of the families have lived at their present farm residence for more than 50 years and 35% of the families at both sites have lived at their present farm residence for 26-50 years. At Site LB1, 83% of landowners have lived at their present residence for less than 10 years.

- The majority of landowners interviewed at Site LB1 live at the upstream end of the reservoir site, whereas landowners at Sites 7B1 and 7A are distributed more or less evenly throughout their respective reservoir sites.

Families in the Little Bow River Basin tend to live in an area for a long period of time. This is particularly true for landowners at Sites 7B1 and 7A. It is probable that the longer a landowner lives in one area and in one residence, the greater is the sentimental attachment to that place.

Table 3.1.2 Number of Years of Landowner Residency and Relative Land Location at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
No. of Years Lived in Area			
Less than one	2	2	1
1 - 10 years	2	2	2
11 - 25 years	0	4	2
26 - 50 years	2	17	14
More than 50 years	2	9	11
No. of Years at Present Farm Residence			
1 - 10 years	5	9	8
11 - 25 years	0	7	5
26 - 50 years	1	9	9
More than 50 years	0	3	4
No. of Landowners not Living at Farmstead	2	6	4
% of landowners not living at farmstead	25%	18%	13%
Relative Land Location			
Upper Little Bow River	6	10	6
Middle Little Bow River	1	3	12
Lower Little Bow River	1	11	4
Mosquito Creek	5	10	8

3.1.3 Type and size of farming operations

The type and size of farming operations at the three reservoir sites are presented in Table 3.1.3 and the results are summarized below.

- Mixed farming was the most common farming operation at all three sites, representing 65% of the farming operation at Sites 7B1 and 7A, and 75% at Site LB1.

- The greatest number of grain-only farms were found at Site 7B1.

- Most farming operations at Site LB1 were less than 640 acres (1 section) in size. At Sites 7B1 and 7A, approximately one third of the farming operations were 1 to 2 sections in size, and another third were less than a section in size.

- Large farming operations of more than four sections represented 25% of the total number of farm operations at Site LB1, 15% at 7B1, and 20% at Site 7A.

3.1.4 Regional movements of landowners

The location of the potential reservoir site could disrupt the established movement patterns of local residents, as outlined in Table 3.1.4 and summarized below.

- The most common direction of movement to social activities, from all sites, was to the northwest towards High River and Nanton. Residents also travelled to the southwest, towards Claresholm. Residents at Sites 7B1 and 7A travelled more frequently to the southeast and northeast than landowners at Site LB1. The following diagram indicates the towns located in each sector of the study area. The Little Bow River forms the east-west boundary and the Alston Road forms the north-south boundary.

Table 3.1.3 Type and Size of Farming Operations at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
Type of Farming Operation			
Grain farming only	2	11	7
Cattle farming only	0	1	1
Mixed farming (grain and cattle)	6	22	22
Other farming activities: sheep, hogs, fowl, chickens, ducks, geese[a]	1	4	2
Total No. of Farming Operations	**8**	**34**	**30**
Total Size of Operation[b]			
1 - 640 acres (less than 1 section)	4	12	10
641 - 1280 acres (1 - 2 sections)	0	11	9
1281 - 1920 acres (2 - 3 sections)	1	2	1
1921 - 2560 acres (3 - 4 sections)	1	4	4
More than 2560 acres (more than 4 sections)	2	5	6
Cultivated Deeded Land			
1 - 640 acres	4	18	15
641 - 1280 acres	2	4	6
1281 - 1920 acres	0	6	4
1921 - 2560 acres	0	2	2
Greater than 2560 acres	2	2	2
Uncultivated Deeded Land			
1 - 640	6	26	23
64 - 1280	1	1	3
More than 1280	0	0	0
Cultivated Leased Land			
1 - 640	2	9	9
641 - 1280	0	1	3
More than 1280	1	1	1
Uncultivated Leased Land			
1 - 640	2	10	11
More than 640	0	0	0

a Other farming operations occur only in conjunction with grain, cattle, or mixed farming and are not counted as separate farming operations in the total number of operations.

b The total size of a farming operation includes all of the land farmed by the landowner, regardless of whether it is situated at the reservoir site or near some other location.

Little Bow River

Calgary Cayley High River Nanton	NW	NE Brant Ensign Vulcan Kirkaldy
Alston Road		
Parkland Stavely Claresholm Blairmore Coleman	SW	SE Champion Nobleford Lethbridge Taber

- School children from Site LB1 travelled only to the NW sector to go to school. Children from Site 7B1 also travelled primarily to this sector, but also travelled to other sectors. Children from Site 7A travelled primarily to the SE sector, but also travelled to other sectors.

- Landowners and their families from Site LB1 travelled primarily to the NW sector to do their everyday shopping. Residents from Sites 7B1 and 7A travelled to all sectors more or less equally to do their everyday shopping, except to the SE sector.

- Residents at Site LB1 travelled to the NW sector for repairs and major purchases. Residents at Sites 7B1 and 7A travelled primarily to the NW sector, with the alternative direction of travel to the SE sector.

Generally, people who lived on one side of the river did not cross the river for everyday shopping or for repairs and major purchases. This occurred even when landowners were located equidistant between two communities on either side of the river. This situation is enhanced because long distance telephone charges apply to calls made from one side of the river to the other (since the telephone long distance boundary occurs along the river). Furthermore, the river is the dividing line between the M.D. #26 and County #2, which affects schooling.

Table 3.1.4 Regional Movements of Landowners at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
Movements to Social Activities			
Northwest Sector	8	25	16
Northeast Sector	1	10	14
Southeast Sector	0	10	11
Southwest Sector	1	13	14
Movements to School			
NW	5	11	7
NE	0	8	8
SE	0	8	11
SW	0	8	8
Movements to Do Everyday Shopping			
NW	8	19	14
NE	0	15	16
SE	0	4	6
SW	0	11	12
Movements to Get Repairs and Major Purchases			
NW	12	30	25
NE	0	14	12
SE	0	18	20
SW	0	12	9

3.2 Potential Impacts

The potential impacts due to reservoir construction are discussed as they apply to loss of farm property due to flooding and changes in farm development plans. Other impacts are also identified, as well as those impacts considered greatest by landowners.

3.2.1 Number of potentially flooded buildings and improvements

The number of potentially flooded buildings and improvements is presented in Table 3.2.1. The results are summarized below.

- Twenty-five percent of farmsteads could potentially be flooded at Site LB1, 17% at Site 7A, and 15% at Site 7B1.

- At Sites LB1 and 7B1, 25% of the residences were situated within one mile of the potential reservoir, compared to 13% at Site 7A.

- The largest number of residences located within a mile of a potential reservoir site occurred at Site 7B1.

- A proportionately larger number of farm buildings and improvements would be affected at Site LB1, although fewer livestock-related improvements and irrigation pump sites would be affected than at Sites 7B1 and 7A.

- The largest number of domestic animals would be affected at Site 7B1. Half as many livestock would be affected at Site 7A and very few at Site LB1. The Little Bow Hutterite Colony at the 7B1/7A site has a large number of the cattle that would be affected at either the 7B1 or 7A site.

Table 3.2.1 Number of Potentially Flooded Buildings and Improvements at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
Place of Residence Affected			
Yes	2	5	5
No	6	29	25
If no, nearby?			
0.0 - .9 miles	2	8	4
1.0 - 1.9 miles	1	6	6
2.0 - 5.0 miles	0	5	5
More than five miles	3	10	10
Buildings and Improvements Affected			
houses[a]	2	12	13
garages	2	5	4
barns	5	14	11
quonset huts	3	0	1
sheds	5	8	10
granaries	8	10	14
lanes/roads	7	15	15
creek crossings	4	20	16
miles of fences	7	34	36
corrals - quantity	1	9	9
corrals - total no. of livestock served	40	1,500	800
wells	8	8	8
developed springs	0	3	3
dugouts	0	1	1
gardens	2	8	7
berry patches	4	13	12
irrigation pump sites	5	24	24
other			
- beehives	12	0	0
- gravel pits	2	0	0
- water storage dam	0	0	1

[a] The discrepancy between the number of houses affected and the places of residence affected at Sites 7B1 and 7A is explained by the fact that the Little Bow Hutterite Colony was counted as one place of residence but includes 8 dwelling units. The additional house at Site 7A is an unoccupied house owned by John McDougall.

3.2.2 Quantity of potentially flooded land

The type and quantity of potentially flooded agricultural land is provided in Table 3.2.2, the results of which are summarized below.

- Relatively small portions of hay/silage production land would be flooded at all sites (160 acres or less).

- At each site, one operation would lose more than 320 acres of grain production. Other losses of grain production land (cropland) included parcels of land less than 161 acres in size.

- The greatest amount of cattle production land (grazing land) would be lost at Site 7B1.

- The total amount of potentially flooded land was greatest at Site 7B1. A 300-acre difference separates this site and Site 7A.

- Fifty percent of the landowners at Sites 7B1 and LB1 could potentially have 0 - 4% of their land flooded, compared to 43% of the landowners at Site 7A. Twenty percent of the landowners at Sites 7B1 and 7A would have 20% of their operation flooded, compared to 37% of the landowners at Site LB1.

- When the amount of grain production land potentially lost was compared to the volume of water storage gained, proportionate losses of grain production land were greatest at Site LB1.

Impacts on residences and farm buildings due to flooding were greatest at Site 7B1. Flooding impacts resulting in the loss of hay/silage, grain, and cattle production land were greatest at Site 7B1.

Table 3.2.2 Quantity of Potentially Flooded Land at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
Land for Hay/Silage Production			
1 - 40 acres	1	3	3
41 - 80 acres	1	5	4
81 - 160 acres	0	3	3
161 - 320 acres	0	0	0
More than 320 acres	0	0	0
Land for Grain Production			
1 - 40 acres	2	4	4
41 - 80 acres	1	0	0
81 - 160 acres	0	4	2
161 - 320 acres	0	0	0
More than 320 acres	1	1	1
Land for Cattle Production			
1 - 40 acres	2	7	6
41 - 80 acres	2	4	5
81 - 160 acres	2	5	3
161 - 320 acres	3	1	1
More than 320 acres	0	4	3
Total Potentially Flooded Land			
0 acres	1	8	6
1 - 40 acres	1	8	8
41 - 80 acres	1	4	3
81 - 160 acres	2	6	7
161 - 320 acres	2	3	2
321 - 480	1	2	1
481 - 640	0	1	1
More than 640 acres	0	2	2
Percent Total Flooded Land			
0.0 - 4.9% of total land owned	4	17	13
5.0 - 9.9% of total land owned	1	3	6
10.0 - 20 % of total land owned	0	7	5
Greater than 20% of total land owned	3	7	6
Total (acres) of Potentially Flooded Land			
Hay/Silage	85	820	818
Grain	440	1,037	782
Pasture	686	3,223	3,103
Total Land	**1,211**	**5,080**	**4,705**

3.2.3 Additional impacts

In addition to potential flooding of buildings, improvements, and land at the three reservoir sites numerous other impacts were of concern. Some of these impacts are listed in Table 3.2.3 and summarized below.

- Over 60% of families at Site LB1 would be forced or would want to relocate. Seventeen percent of landowners would be forced to or would want to relocate at Site 7B1 and approximately 23% at Site 7A.

- Machinery access to portions of farmland would be reduced by approximately 40% at all three sites due to flooding of private roads and/or trails. Public road access to portions of land would be reduced by the greatest amount at Site 7A due to the flooding of the fireguard, Parkland, and Alston Roads and the least at Site LB1 (no road flooding anticipated).

- Fewer than half of the landowners at each site responded that fragmentation of land was a potential impact.

- Forty percent of the landowners at Site LB1 could potentially lose their well water supply, while fewer than 17% at Sites 7B1 and 7A would face this loss.

- Sixty percent of landowners would be forced to give up one or more parts of their operation due to flooding at Site LB1, as compared to 32% at Site 7B1 and 43% at Site 7A. More landowners at each site would have to give up their cattle operation as opposed to other types of operations (such as grain production and hay/silage production).

- Forty to fifty percent of the landowners at each site used the potential reservoir sites for recreation purposes such as berry-picking, picnicking, swimming, and nature appreciation.

- Selection of either Site LB1 or Site 7A would cause approximately half of the landowners to change their development plans. Slightly fewer than half (41%) of the landowners would have to change their farm development plans at Site 7B1.

Table 3.2.3 Impacts in Addition to Potential Flooding of Buildings, Improvements, and Land at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
Be Forced or Desire to Relocate?			
Yes	5	6	7
No	3	28	23
Reduce Machinery Access to Portions of Land?			
Yes	3	14	13
No	4	19	16
Reduce Road Access to Portions of Land?			
Yes	1	13	14
No	6	20	15
Cause Fragmentation of Land?			
Yes	2	15	14
No	5	18	15
Lose Well Water Supply?			
Yes	2	5	5
No	5	28	24
Be Forced to Give up Part of Operation?			
Yes	5	11	13
No	3	23	17
What Part Would be Given Up?			
Cattle Operation	2	6	8
Grain Operation	0	2	2
Hay/Silage Operation	0	2	2
All of the above	3	4	4
Lose Private Recreation Area?			
Yes	3	15	15
No	5	19	15
Cause Change in Farm Development Plan?			
Yes	4	14	14
No	4	19	15
Cause Physical Separation from Neighbors?			
Yes	1	8	9
No	7	26	21
Increase Travel Distances to Services?			
Yes	0	5	5
No	7	29	25
Total Number of Affirmative Responses	**26**	**106**	**109**

- Physical separation from neighbors due to flooding would be least (13%) at Site LB1, greater (18%) at Site 7B1, and greatest (30%) at Site 7A.

- Fewer than 20% of the landowners at all sites would have to travel greater distances to services as a result of flooding. This is because, as mentioned earlier, landowners primarily use services on the same side of the river as their residence.

- A number of landowners living in the river valley immediately downstream of one or more of the potential reservoir sites indicated a desire to be relocated even though their farmsteads would not actually be flooded. Their concerns related to the perceived danger of the dam giving way during a severe storm or earthquake, thus endangering the lives of their families and causing destruction of their property. Some landowners also made mention of the negative aesthetic aspects of being located next to a water storage dam as well as a perceived drastic reduction in their property values.

On the basis of the total number of affirmative responses, additional impacts would be greatest at Sites 7B1 and 7A. Nonetheless, additional impacts at Site LB1 would be greatest relative to its size, particularly as a greater proportion of families would need to be relocated, would be forced to give up part of their operation, and would lose their well water supply.

3.2.4 List of impacts perceived greatest by landowners

The most frequent impacts stated by each landowner are listed in Table 3.2.4 and summarized below.

- Loss of farmsteads would affect 37% of landowners at Site LB1 and 10% of landowners at Sites 7B1 and 7A.

- Loss of land was the greatest impact for all landowners at each site. Fifty percent of the landowners at Sites LB1 and 7B1 would lose land and 43% would lose land at Site 7A.

Table 3.2.4 List of Impacts Perceived Greatest by Landowners at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
Loss of farmstead	3	2	2
Loss of buildings, improvements	0	2	2
Loss of land	4	17	13
Loss of cattlefeed	0	2	3
Loss of road access	0	3	3
Loss of machinery access to land	0	1	1
Loss of well water	0	1	1
Loss of water for stockwatering	1	1	1
Loss of water pumping site	0	3	3
Loss of land for irrigation	0	3	2
Loss of privacy	1	0	0
Loss of private recreation area	0	1	1
Loss of income	0	1	1
Loss of Indian burial ground	0	1	1
Loss of retirement home building site	0	1	1
No significant loss	0	4	3

Table 3.2.5 List of Ways in Which Discussion of a Potential Reservoir Site has Changed Farm Development Plans of Landowners at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
Stalled on general development plans	2	3	2
Stalled on construction plans (farm buildings and improvements)	3	5	6
Stalled on plans to build residences	2	1	2
Stalled on irrigation plans	1	3	4
Stalled on plans to sell	0	1	1
Stalled on purchase of beef cattle	0	1	1
Stalled on seeding for improved pasture land/cropland	1	1	1
New plans to buy replacement land	0	1	0
Anxiety about final decision	0	1	1
Anxiety about relationship with neighbors	0	1	1
Anxiety about stock water availability	1		
No direct effect	0	5	5

- For several landowners at Sites 7B1 and 7A, other significant impacts include loss of road access, loss of buildings and improvements, loss of land for irrigation, and loss of water pumping sites.

- Ten percent of the landowners at Sites 7B1 and 7A had no significant losses to report.

3.2.5 Changes in farm development plans

The ways in which discussion of a potential reservoir has changed farm development plans in the Little Bow River Basin are summarized in Table 3.2.5 and discussed below.

- Twenty-five percent of the landowners at Site LB1 have delayed general development plans, while fewer than 10% have stalled at Sites 7B1 and 7A.

- Pending reservoir development has led 37% of the landowners at Site LB1 to delay plans for construction of farm buildings and improvements, while 15% of landowners have delayed at Site 7B1 and 20% at Site 7A.

- Twenty-five percent of landowners have delayed plans to build residences at Site LB1, while fewer than 10% have delayed plans at Sites 7B1 and 7A.

- Landowners at Sites 7B1 and 7A have delayed plans to sell or purchase cattle, and at all sites to seed for improved pasture and cropland.

- Feelings of anxiety were expressed by landowners at all sites concerning the imminent reservoir decision, relationships with neighbors, and stockwater availability.

- Discussion of a potential reservoir site has had no direct effect on approximately 16% of the landowners at Sites 7B1 and 7A.

3.3 Landowner Views

3.3.1 Benefits and drawbacks of reservoir construction

Landowner views concerning benefits and drawbacks of constructing a water storage reservoir in the area are presented in Table 3.3.1. These views are summarized below.

- Over 75% of all interviewed landowners were in favor in principle of having a reservoir constructed on the Little Bow River.

- Over 85% of the landowners interviewed at Site LB1 were not in favour of a reservoir close to them. Approximately 30% of landowners at Sites 7B1 and 7A were not in favor of a reservoir close to them.

- Additional landowner comments indicated that although a landowner may have been in favor of a reservoir, this depended both on compensation and long term benefits.

- All landowners at Site LB1, 70% at Site 7B1, and 60% at Site 7A believed that local irrigation farmers would benefit the most from the construction of a reservoir. Landowners at Site LB1 specified that irrigation farmers downstream would benefit more than the immediate community at Site LB1.

- Seventy percent of the landowners at Sites 7B1 and 7A believed that the community would benefit economically if a reservoir were built. Fifty percent believed the same at Site LB1.

- Seventy-three percent of the landowners at both Sites 7B1 and 7A believed that an increased water supply would benefit the community; fewer than half the respondents believed the same at Site LB1.

Table 3.3.1 Landowner Views Concerning Benefits and Drawbacks of Constructing a Water Storage Reservoir at One of Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
In Favor of Reservoir on Little Bow River?			
Yes	5	27	24
No	2	2	2
Neutral	1	4	3
In Favor of Reservoir Built Nearest to Landowner?			
Yes	1	18	17
No	7	11	9
Neutral	0	5	4
Who Would Benefit From Construction of Reservoir?			
Irrigation farmers downstream	7	4	4
Local irrigation farmers	1	20	18
Local residents and communities (economic growth)	0	5	4
Recreation users	3	2	0
Construction contractors	0	2	1
Politicians	0	2	2
Municipalities (water supply)	0	0	1
Will the Community Benefit from the Following:			
Economic Growth?			
Yes	4	24	20
No	4	10	10
Increased Water Supply?			
Yes	3	25	22
No	5	9	8
Increased Recreation Potential?			
Yes	5	27	23
No	3	5	5
Unknown	0	2	2
Will the Community Suffer Drawbacks from the Following:			
Physical Separation of Farmsteads?			
Yes	4	22	18
No	4	12	12
Reduced Transportation Routes			
Yes	2	19	16
No	5	13	12
Neutral	0	1	1

- Most landowners believed that the community would have more recreation opportunities if a reservoir were constructed.

- More than 50% of all landowners interviewed believed that the community will suffer due to the physical separation of farmsteads.

- Reduced transportation routes were considered a drawback by approximately 55% of the landowners at Sites 7B1 and 7A and 25% of landowners at Site LB1.

Additional comments were received from several landowners regarding site preference. These are summarized below.

- The landowners believed that a large reservoir should be built now so that all land acquisitions could be made at one time. They believed that a reservoir at Site LB1 would be too small to adequately serve regional landowners and would need to be upgraded in the future.

- Site 7A was regarded as the best reservoir site for the following stated reasons: 1) the upland area adjacent to the site is better for irrigation; 2) Parkland and Alston road construction would not be as large; and 3) there are fewer landowners living in the river valley downstream.

It appeared that landowners at Sites 7B1 and 7A were much more in favor of a reservoir than landowners at Site LB1. Furthermore, landowners at Sites 7B1 and 7A felt that the regional community would receive greater benefits from reservoir construction than did landowners at Site LB1.

3.4 Reservoir Use

3.4.1 Potential use of reservoir by landowners

Potential use of the reservoir by landowners is presented in Table 3.4.1 and summarized below.

- Seventy-four percent of landowners at Site 7B1 and 77% at Site 7A believed the greatest potential use of the reservoir is for irrigation, while 38% believed the same at Site LB1.

- At all three sites, fewer than 50% of landowners identified stockwatering as a potential use of the reservoir.

- Domestic use was generally not perceived as a potential use for the reservoir.

- Most landowners at Sites 7B1 and 7A considered recreation a potential use of the reservoir, while fewer landowners did so at Site LB1.

Of the five water uses listed in Table 3.4.1, irrigation was ranked as the most important water use. Stock watering/domestic use and municipal water supply were ranked second and third, respectively; however, the percent water use scores were similar. Recreation development was ranked fourth and wildlife utilization was ranked fifth and least important. It should be noted that the low ranking for wildlife was not necessarily due to a lack of concern, but rather due to a perception that there is currently no wildlife.

3.4.2 Acceptable types and levels of recreational development

Landowners were asked what kinds and degree of recreation development were acceptable. The results are presented in Table 3.4.2 and summarized below.

- Landowners at Site LB1 were generally opposed to particular types of recreation development (such as campground, cottage, marina, etc.) and approximately half did not want any kind of recreation development at all.

Table 3.4.1 Reservoir Uses Perceived Important by Landowners at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
Potential Uses of Reservoir by Landowners?			
Irrigation?			
Yes	3	25	23
No	2	8	6
Stockwatering?			
Yes	3	16	12
No	2	19	18
Domestic Use?			
Yes	0	5	4
No	5	29	26
Recreation?			
Yes	1	23	21
No	4	11	9
Ranked Importance of Water Uses?			
Irrigation	1 (31%)	1 (33%)	1 (33%)
Stockwatering/domestic use	2 (21%)	2 (20%)	3 (19%)
Municipal water supply	3 (20%)	3 (19%)	2 (21%)
Recreation development	4 (16%)	4 (16%)	4 (15%)
Wildlife utilization	5 (12%)	5 (12%)	5 (12%)

- Sites 7B1 and 7A respondents perceived most types of recreation development as acceptable, although they were opposed to country residences, private campgrounds, and marinas.

- At all sites, over 70% of landowners answered that country residence development was unacceptable.

- All landowners at Site LB1 were against private campground development, compared to 56% of landowners at Site 7B1 and 60% at Site 7A.

- Sixty percent of the landowners at Sites 7B1 and 7A were opposed to a marina development, compared to 87% at Site LB1.

- Over 85% of the landowners at Site LB1 were opposed to private cottage development, whereas 56% of landowners at Sites 7B1 and 7A were in favor of cottage development.

- Public day-use and picnic grounds were acceptable to 70% of landowners at Site 7B1, 63% at Site 7A, and 50% at Site LB1.

- Public campgrounds were opposed by 75% of the landowners at Site LB1; however, approximately 50% of landowners at Sites 7B1 and 7A favored them.

- Development of a boat launch was acceptable to approximately 75% of the landowners at Sites 7B1 and 7A, whereas 75% of the landowners at Site LB1 were opposed.

- The most acceptable level of recreation development was considered large development (local, regional, and urban users) by 38% of the landowners at Site 7B1 and 33% at Site 7A. None of the landowners at Site LB1 favored large recreation developments.

- Twenty percent of landowners at Site 7B1 and 23% of Site 7A landowners were opposed to recreation development, whereas 50% were opposed at Site LB1. The other 50% of landowners at Site LB1 found intermediate level (local and regional users) development most acceptable.

Table 3.4.2 Acceptable Types and Levels of Recreation Development to Landowners at Three Potential Reservoir Sites in the Little Bow River Basin

	LB1	7B1	7A
Acceptable Type of Recreation Development:			
Private Cottages?			
Yes	1	19	17
No	7	15	13
Country Residences?			
Yes	2	10	9
No	6	24	21
Public Day Use/Picnic Grounds?			
Yes	4	24	19
No	4	10	11
Public Campgrounds?			
Yes	2	18	16
No	6	16	14
Private Campgrounds?			
Yes	0	15	12
No	8	19	18
Boat Launch?			
Yes	2	26	22
No	6	8	8
Marina?			
Yes	1	14	12
No	7	20	18
Acceptable Level of Recreation Development:			
No Recreation Development	4	7	7
Small Development (Local Users Only)	0	7	6
Intermediate Development (Local and Regional Users)	4	7	7
Large Development (Local, Regional, and Urban Users)	0	13	10
Can Recreation Occur Without Jeopardizing Irrigation?			
Yes	5	28	26
No	2	4	3
Depends or Don't Know	1	2	1

- More than 60% of the landowners at all sites (80% at Sites 7B1 and 7A and 63% of Site LB1) believed recreation development was possible without jeopardizing irrigation. Several respondents answered that they did not know, or that it depended on other factors, such as the location and intensity of the development and fluctuations in the water level of the reservoir.

Overall, landowners at Sites 7B1 and 7A were more in favor of recreation development than landowners at Site LB1. The majority of landowners at all sites were opposed to country residences, private campground, and boating marinas.

3.4.3 Perceived drawbacks and benefits of recreation development

Recreation development drawbacks and benefits as perceived by the landowners are presented in Table 3.4.3 and summarized below.

- A reduction in water quality was not perceived as a significant drawback by over 80% of all landowners.

- Increased public access and subsequent loss of privacy was seen as a significant drawback by over 75% of all landowners.

- Landowner/recreational user conflicts in terms of trespassing and vandalism were seen as significant by over 80% of all landowners.

- Recreation/wildlife conflicts were considered significant by all landowners at Site LB1 and by half of the landowners at Sites 7B1 and 7A.

- Increased local traffic to and from recreational areas was considered significant by over 85% of all landowners.

- Pollution from sewage disposal at recreation developments was not seen as significant by approximately 70% of all landowners.

- Increased benefits to local people were considered significant by 75% of landowners at Sites 7B1 and 7A and by 50% of LB1 landowners.

Table 3.4.3 **Perceived Drawbacks and Benefits of Recreation Development by Landowners at Three Potential Reservoir Sites in the Little Bow River Basin**

	LB1	7B1	7A
Perceived Recreation Development Drawbacks:			
Reduction in Water Quality?			
Significant	3	5	3
Insignficant	5	29	27
Increased Public Access?			
Significant	7	26	24
Insignificant	1	8	6
Landowner/Recreation User Conflicts?			
Significant	8	26	24
Insignificant	0	7	5
Recreation User/Wildlife Conflicts?			
Significant	8	15	15
Insignificant	0	18	15
Increased Local Traffic?			
Significant	7	29	27
Insignificant	1	5	3
Pollution From Sewage Disposal?			
Significant	5	10	8
Insignificant	4	24	22
No. of Respondents Indicating Sign. Drawbacks	**38**	**111**	**101**
No. of Respondents Indicating Insign. Drawbacks	**11**	**91**	**78**
Perceived Recreation Development Benefits:			
Increased Benefit for Local People?			
Significant	4	25	23
Insignificant	4	9	7
Increased Spending by Tourists in Region?			
Significant	1	13	13
Insignificant	7	21	17
Increased Local Employment?			
Significant	1	12	10
Insignificant	7	22	20
No. of Respondents Indicating Sign. Benefits	**6**	**50**	**46**
No. of Respondents Indicating Insign. Benefits	**18**	**52**	**44**

- Increased spending by tourists was considered not to be significant by approximately 60% of all landowners.

- Approximately 70% of all landowners did not expect increased local employment to be significant.

As in earlier sections, a higher proportion of landowners at Site LB1 had a negative attitude toward recreation development than landowners at the other two sites.

It must be emphasized that the High River Hutterite Colony, situated immediately downstream of Site LB1, and the Little Bow Hutterite Colony, situated within the 7B1/7A reservoir site, would have serious concerns about <u>any</u> recreation development near their locations since it would severely conflict with their lifestyle. Although they were only represented in this report as two landowners, the large number of individuals affected (65 people at Little Bow Colony and 67 people at the High River Colony) cannot be ignored.

3.5 Project Implementation

3.5.1 Landowner attitudes concerning potential reservoir construction

The attitudes of landowners concerning potential reservoir construction are summarized in Table 3.5.1 and discussed below.

- Most landowners believed that reservoir construction would begin in two to five years, although a considerable number of landowners from Sites 7B1 and 7A believed that construction would begin in less than two years.

- Five percent of all landowners did not believe that a reservoir would ever be constructed. A few individuals did not want to speculate about reservoir construction.

- Most landowners want construction to proceed year round, although a large number of the landowners stated no seasonal preference.

- Several landowners felt that construction should be completed during the winter in order to create off-season employment for the region and to avoid disturbing farmers at the dam site during spring and summer when farming activities are greatest.

- There was also some preference for construction during the summer by landowners who believed that it is more efficient to work in the summer than the winter.

Prior to constructing a water storage dam, the provincial government would need to acquire lands in a small strip around the reservoir up to what is called the "take-line" (approximately top-of-dam elevation). In the construction of other reservoirs in southern Alberta, the government has agreed to purchase additional lands around the reservoir up to the nearest quarter section line if the landowner so desired. Landowners were asked whether they wanted the government to buy the land to the quarter section or if they preferred to own the land to the take-line. Their answers are tabulated in Table 3.5.1 and summarized below.

Table 3.5.1 **Landowner Attitudes Concerning Potential Reservoir Construction at One of Three Potential Reservoir Sites in the Little Bow River Basin**

	LB1	7B1	7A
Number of Years Until Reservoir Construction Begins?			
1 year	0	5	4
2 years	1	10	9
3-5 years	5	10	10
6-10 years	0	2	2
11-30 years	0	1	1
Never	1	2	1
No speculation	1	4	2
Seasonal Preference for Construction?			
Summer Months	0	2	2
Winter Months	1	2	3
Year Round	3	19	17
No Preference	4	11	8
Preferential Arrangement for Land Purchase?			
Purchase to Take-Line	3	19	16
Purchase to Quarter Section Line	2	8	7
Combination of Above	0	1	1
No Concern	0	1	2
Uncertain, Would Have to be Negotiated	0	3	2
Depends on Level of Compensation	2	2	2
Depends on Access to Water's Edge	0	0	1
Depends on Development Around Reservoirs	1	0	0
Depends on Ability to Subdivide Land	0	1	1
Depends on Amount of Land Remaining	0	4	4

- Approximately 50% of all landowners preferred to own the land to the "take-line", while approximately 25% preferred the government to purchase the land to the quarter section line.

- Twenty percent of all landowners stated that their preference would be dependent on a number of factors, including the level of compensation, access, type of reservoir development, and amount of land remaining after flooding.

- A few landowners indicated a preference to sell their fragmented land to the quarter section line while retaining the rest of their land to the "take-line".

- A few landowners had no concerns about land purchase either because they did not own land within a quarter mile of the nearest reservoir site, or because they would lose an equal amount of land under both arrangements.

In general, those landowners who stood to lose a sufficiently large portion of their land, thus making it impossible to continue farming, usually opted to sell their land to the quarter section line. Conversely, those landowners who would be able to continue farming at the same location after flooding usually opted to retain their land to the "take-line".

3.6 Additional Landowner Comments

During the personal interviews, landowners provided numerous comments which were recorded in addition to the guideline questions. Tabulation of these comments was not considered suitable because of the varied nature of most comments. Instead, the comments are presented below as a way of providing additional insight regarding landowner opinions. Most of the comments are statements made by individuals and do not necessarily reflect the attitudes of the Little Bow River Basin community. The comments have been grouped together in general subject areas.

3.6.1 Cost/benefit evaluation of constructing a reservoir

- Some landowners believed that all three sites would benefit from irrigation because, even in dry years, irrigated lands produce a satisfactory crop yield. This guaranteed crop yield would provide economic stability to the farmer since it would ensure sufficient revenues every year with which to make land and equipment payments.

- Other landowners believed that the cost of reservoir construction in the Little Bow River Basin would be cheap, compared with other reservoirs constructed in southern Alberta. Construction costs of $240/acre-foot for a reservoir on the Little Bow River were compared with $500/acre-foot for the next most economical reservoir in the region.

- Two landowners claimed that there would be no benefit to constructing a reservoir, since farmers currently cannot sell the grain and livestock they produce.

- One landowner believed that the benefits of reservoir construction (in terms of increased irrigation potential) may not outweigh the disadvantages of removing existing agricultural land and wildlife habitat at the reservoir site.

- Concern was expressed by one landowner regarding soil salinity. It was felt that this is currently a problem on the Little Bow River and is anticipated to

increase if the land is irrigated (irrigation tends to bring salts to the surface where they interfere with water uptake by the plants).

3.6.2 Alternative reservoir site

- It was suggested that the reservoir be constructed west of the Town of High River, where fewer people would be affected and most of the flooded land would be government lease land.

3.6.3 Loss of land to benefit downstream irrigators

- One landowner expressed the concern that if downstream users wanted water, they should store it on their own land because it was unreasonable to expect landowners at the reservoir site to lose their land in order to benefit downstream users.

3.6.4 Concern for wildlife

- Additional comments included landowner concern for wildlife at all three sites. The most common concern was the loss of wildlife habitat for the many species that use the Little Bow River Valley, including white-tailed deer, mule deer, coyote, fox, badger, muskrat, gopher, porcupine, otter, waterfowl, heron, Hungarian partridge, and raptors.

- Although most people thought that the reservoir would be detrimental for wildlife, one landowner thought that irrigation might improve wildlife habitat in the surrounding area.

- One landowner was concerned that ducks would use the reservoir and also feed in nearby fields resulting in crop damage.

- A suggestion was made that wildlife habitat loss could be compensated by establishing a wildlife sanctuary at the upstream end of the reservoir to replace downstream habitat loss.

3.6.5 Loss of historic and recreational sites

. Additional comments were conveyed regarding the loss of historic sites including the following: 1) a traditional meeting place of Blood and Blackfoot Indians at the Mosquito Creek - Little Bow River junction; 2) the site of the Little Bow Ranch Company (1882) at Sites 7B1 and 7A; 3) an outdoor retreat for girlguides and boyscouts at Site 7A; and 4) a unique farm site at Site 7B1.

4.0 CONCLUSIONS

In order to assess the relative social impacts of the proposed reservoir sites, the interview results were scaled using two subjective numerical rating systems, one rating system being applied to the physical impacts resulting from reservoir construction and the other to landowner views concerning reservoir construction.

The first rating system included key issues identified in the Background Information section and the Potential Impacts section of the report. For each issue, the reservoir site with the smallest social impact was assigned a value of one. The other reservoir sites were then assigned a value relative to the first reservoir. For instance, if Site LB1 was assigned a value of one (1) concerning the number of potentially flooded buildings and improvements and Sites 7B1 and 7A were assigned a value of two (2), this would indicate that approximately twice as many buildings would be potentially flooded at Sites 7B1 and 7A as at Site LB1. The results of this comparative rating of physical impacts are presented in Table 4.1.

Concerning the Background Information subsection of Table 4.1, Sites 7B1 and 7A were rated as having approximately four times as many impacts as Site LB1. The relative ranking for the total number of individuals affected was derived from Table 3.1.1. The number of years of residency was included as a background impact since landowners interviewed who had lived in the area for more than one generation (approximately 25 years) had a significantly greater sentimental attachment to their farmstead and land than did landowners who had lived in the area for a lesser period of time. Thus, landowner residency exceeding twenty five years was ranked on the basis of information in Table 3.1.2. The size of farming operation was included as a background impact since it appeared that those landowners with smaller operations would be more significantly impacted by a reservoir than larger ones. Therefore, the landowners with a total size of operation of less than 640 acres were grouped and ranked from data in Table 3.1.3.

Table 4.1 Comparative Rating of Physical Impacts at Three Potential Reservoir Sites in the Little Bow River Basin

Issue	Site LB1	Site 7B1	Site 7A
Background Information			
Total Number of Individuals Affected	1	3	3
Number of Years of Residency	1	6	6
Size of Farming Operation	1	3	3
Potential Impacts			
Potentially Flooded Buildings and Improvements	1	2	2
Potentially Flooded Land (% of total owned)	1	2	2
Potentially Flooded Land (total acres)	1	4	4
Additional Impacts	1	4	4
Dev. Plans Stalled by Discussion of Reservoir	1	1	1
Relative Ranking	**1**	**3**	**3**

The ratings assigned to each issue are subjective and cannot be given any quantitative interpretation. Their only value is to show the relative difference in physical impacts between the sites.

In the Potential Impacts subsection of Table 4.1 Sites 7B1 and 7A were rated as having almost three times as many impacts as Site LB1. The comparative impact for potentially flooded buildings and improvements was determined by totalling the major buildings and improvements at each site as presented in Table 3.2.1. Relative ranking of potentially flooded land, both in terms of total acres and percent of total owned, was derived from Table 3.2.2. Additional impacts such as reduced road access to portions of land, physical separation from neighbours, etc. were rated on the basis of a compilation of affirmative responses in Table 3.2.3. A list of ways in which discussion of a potential reservoir site stalled farm development plans (Table 3.2.5) was used to establish a comparative ranking for the last issue in Table 4.1.

On the basis of the subjective numerical rating system used to compare physical impacts, Sites 7B1 and 7A appeared to have approximately three times as many impacts as Site LB1. This was mostly due to the larger size of Sites 7B1 and 7A. The most important issues in this portion of the evaluation were the total number of individuals affected, the potentially flooded buildings and improvements, and potentially flooded land. If only these three issues were considered in the rating the resultant ratio would still be approximately three to one in the direction of the larger two reservoirs.

The second numerical rating system was used to evaluate key isues in the Landowner Views section and the Reservoir Use section of the report. This rating system involved the summation of negative and positive attitudes to obtain a net positive or negative rating for each issue. For example, if 20 landowners at Site 7B1 were in favor of a reservoir being built closest to them and 10 were against, the resultant rating would be +10. On the other hand, if 5 landowners at Site LB1 were against having a reservoir built at all and 3 were in favor, the result would be -2. If the number of landowners in favor and against were equal, their net attitude would be considered neutral. For each issue, the net rating was divided by the number of respondents to better reflect the differing number of landowners at each site. The comparative rating of landowner views is presented in Table 4.2.

Table 4.2 Comparative Rating of Landowner Views at Three Potential Reservoir Sites in the Little Bow River Basin

Landowner Views	Site LB1	Site 7B1	Site 7A
Negative/Positive Attitude towards Reservoir Construction	+4	+7	+7
Negative/Positive Attitude towards Construction nearest Landowner	-8	+2	+3
Community Benefits/Drawbacks from Reservoir	+1	+2	+2
Reservoir Use			
Acceptable/Unacceptable Types of Recreation Development	-6	+1	0
Acceptable/Unacceptable Levels of Recreation Development	0	+6	+5
Significant/Insignificant Recreation Development Drawbacks	-6	-1	-1
Significant/Insignificant Recreation Development Benefits	-5	0	0
Relative Ranking	-2	+2	+2

Concerning the Landowner Views subsection of Table 4.2, landowners at Site LB1 revealed a net negative attitude towards reservoir construction while landowners at Sites 7B1 and 7A had a net positive attitude, approximately four times the magnitude of Site LB1. The comparative ratings for attitudes towards reservoir construction in principal and attitudes towards reservoir construction nearest the landowners were derived from Table 3.3.1. In both cases the affirmative responses were subtracted from the negative responses and the neutral responses were excluded from the evaluation. The relative ranking for community benefits/drawbacks from reservoir construction were also obtained from the results of Table 3.3.1. For this issue, the net attitudes were tallied from the results of five different questions on Table 3.3.1.

In the Reservoir Use subsection of Table 4.2, landowners at Site LB1 had net negative attitudes that were approximately three time greater and opposite to the attitudes of Site 7B1 landowners and four times greater than Site 7A landowners. A comparative rating of acceptable/unacceptable types of recreation development (i.e. cottages, campgrounds) were derived from the affirmative and negative responses of seven questions in Table 3.4.2. Rankings for acceptable/unacceptable levels of recreation development (i.e. small, medium, large) were developed from four questions on the same table. The relative ratings for recreation development drawbacks and benefits were obtained from information in Table 3.4.3.

On the basis of the net results of Table 4.2, it appears that the landowners at Site LB1 have a net negative attitude towards reservoir construction that is equal and opposite in direction to attitudes at Sites 7B1 and 7A.

Major factors contributing to this positive attitude on behalf of the landowners at Sites 7B1 and 7A include:

- a general belief by the majority of landowners at all three sites that only the larger reservoirs would store enough water to significantly improve irrigation potential and provide substantial net benefits to the community, and
- a belief by landowners at Sites 7B1 and 7A that they will have direct benefits from a reservoir as opposed to landowners at Site LB1, who believe that only downstream water users will benefit.

It is important to note that each landowner response was considered equally regardless of whether that particular landowner represented 2 individuals or 60 or whether he lived in the river valley and stood to lose his farmstead and 80% of his crops or just a few acres of marginal pasture. Therefore, it is possible that while the majority of the landowners at a particular site may be in favor or reservoir construction, this may represent 15% highly impacted landowners who are opposed and 85% marginally affected landowners who are in favor. To test this hypothesis, we compared the impacts and attitudes of landowners living in the river valley with the total results for all landowners. Table 4.3 shows the results for a select few of the more important interview guideline questions. From this table it can be seen that the river valley landowners at Site LB1 would endure more than 60% of impacts to individuals, buildings, and land even though they comprise only 25% of the Site LB1 landowners interviewed. Furthermore, river valley landowners at all three sites would potentially lose 70% or more of the total number of buildings and improvements. River valley landowner attitudes at Site LB1 were very negative in comparison with the total number of landowners at that site while river valley landowners at Sites 7B1 and 7A were only slightly more negative than the remaining landowners.

In conclusion, it can be said that the greater the number of individuals, buildings, improvements, and land that would be affected due to reservoir construction, the greater would be the social impacts. Similarly, the greater the negative attitudes towards reservoir construction and reservoir use, the greater would be impacts. In this report, where it has been determined that the landowners who would suffer the greatest impacts are most in favor of a reservoir, a decision must be made as to whether the physical impacts or the landowner attitudes will take precedence in assigning a final social impact ranking on the three sites.

Combining the results of Table 4.1 with the results of Table 4.2, it was revealed that while greater physical impacts would occur as a result of reservoir construction at Sites 7B1 and 7A, the landowners at these two sites were more in favor of building a reservoir than landowners at Site LB1. In other words, even though the reservoir construction would cause more physical impacts to landowners at Sites 7B1 and 7A than at Site LB1, the landowners at Sites 7B1 and 7A were in general more in favor of having a reservoir.

Table 4.3 **Comparison of Impacts Between River Valley Landowners and Total Landowners at Three Potential Reservoir Sites in the Little Bow River Basin.**

		Site LB1			Site 7B1			Site 7A		
		Valley	Total	%Valley	Valley	Total	%Valley	Valley	Total	%Valley
Number of Landowners		2	8	25%	3	34	8%	4	30	13%
Landowner Impacts										
Total No. Individuals Affected		73	106.5	69%	80	295.5	27%	88	292.5	30%
Potentially Flooded Buildings and Improvements		23	25	92%	44	49	90%	37	53	70%
Potentially Flooded Land (Total Acres)		750	1,211	62%	1860	5,080	37%	1880	4,705	40%
Landowner Attitudes										
% In Favor of reservoir	Yes		63		100	82		100	83	
No	100	25			6			7		
Neutral		12			12			10		
% In favor of reservoir nearest landowner	Yes		12		66	53		75	57	
No	100	88		33	32		25	30		
Neutral					15			13		
Accept. levels of Recreational Development (%) No Dev.		100	50		33	21		50	23	
Small Dev.				33	21		25	20		
Intermed. Dev.		50			21			23		
Large Dev.				33	38		25	33		

APPENDIX A

Potentially Affected Landowners at Three Potential Reservoir Sites in the Little Bow River Basin

Appendix A Potentially Affected Landowners at Three Potential Reservoir Sites in the Little Bow River Basin

Name	Reservoir Site	Address	Phone
Martin Hoffer	LB1	Hutterian Brethren Church of High River, Gen. Del. High River, Alberta TOL 1B0	395-2107
Bruce and Janet Akitt	LB1	Box 1161 High River, Alberta TOL 1B0	652-7575
Donald and Mabel Coote	LB1	2504 - 20 Street Nanton, Alberta TOL 1RO	646-2963
Mario and Susan Majchrowski	LB1	#222, 520 - 58 Avenue S.W. Calgary, Alberta T2V OHO	255-3647
Monti May Lerand and Lindsay B. Mayes	LB1	108 Ranchview Court N.W. Calgary, Alberta T3G 1R5	283-0945
Wilson Jack Sutherland	LB1	Box 103 High River, Alberta TOL 1BO	652-7361
Brian and Lori Jones	LB1	Box 3820 High River, Alberta TOL 1BO	652-2714
Donald Ross Giles	LB1	R.R. #1 Cayley, Alberta TO1 OPO	395-2161
Bob and Peggy Monkman	7A, 7B1	R.R. #1 Nanton, Alberta	549-2387
Eldon Jones	7A, 7B1	Stavely, Alberta	646-3827
Mike Hoffer	7A, 7B1	Hutterian Brethren Little Bow Church Parkland, Alberta	897-2323
George Egger	7A, 7B1	118 - 48 Avenue W Claresholm, Alberta	625-3981

Appendix A Potentially Affected Landowners at Three Potential Reservoir Sites in the Little Bow River Basin Continued

Name	Reservoir Site	Address	Phone
Adrian Dykstra	7A, 7B1	Box 84 Nanton, Alberta	646-5518
Paul De Clercq	7A, 7B1	Box 276 Champion, Alberta	897-2464
Jerry Strauss	7A, 7B1	Parkland, Alberta	897-2245
Glen and Helen Williams	7A, 7B1	Parkland, Alberta	646-5524
Randall Williams	7A, 7B1	Box 59 Champion, Alberta	897-2360
E.K. Brown Farms Ltd.	7A, 7B1	Box 2 Ensign, Alberta	485-6537
Evan Williams	7A, 7B1	Box 492 Vulcan, Alberta	897-2281
Tom and Felicia Irwin	7A, 7B1	Brant, Alberta	485-6679
Don Mallory	7A, 7B1	R.R. #2 Vulcan, Alberta	485-6589
Gary Flitton	7A, 7B1	Box 84 Vulcan, Alberta TOL 2BO	897-2424
Bert Goodison	7A, 7B1	High River, Alberta	652-3467
Norman Andrews	7A, 7B1	Has Farms Ltd. Parkland, Alberta	646-3825
Donald and Judith Clopton	7A, 7B1	Vulcan, Alberta	897-2170
Andrew Sherman	7A, 7B1	811 Highway Avenue Nobleford, Alberta	824-3865
J. Forbes Henry	7A, 7B1	2402 - 26 Street Nanton, Alberta	646-2662
Arthur and Marion Lyon	7A, 7B1	2420 - 19 Street Nanton, Alberta	646-2298

Appendix A **Potentially Affected Landowners at Three Potential Reservoir Sites in the Little Bow River Basin** Continued

Name	Reservoir Site	Address	Phone
Michael Fath	7A, 7B1	Box 353 Champion, Alberta	897-3772
Buster Carnegie (Joanne Cummins)	7A, 7B1	3202 - 8 Street S.W. Calgary, Alberta T2G 3A6	243-7604
John Taylor	7A, 7B1	505 - 21 Avenue S.W. Calgary, Alberta	228-3987
Fred Koehler	7A, 7B1	Box 370 Claresholm, Alberta	625-2262
Roy and Audrey Egger	7A, 7B1	Box 71 Stavely, Alberta	549-2249
Layla Tronsgard	7A, 7B1	4427 - 20 Avenue NW Calgary, Alberta T3B OT5	256-9522
Clayton Sletto	7A	Box 155 Champion, Alberta	897-2183
Mr. and Mrs. John McDougall	7A	Box 220 Champion, Alberta	897-2284
Glenn Fath	7A	Box 66 Champion, Alberta	897-2181
Roy Hall	7A	Stavely, Alberta	549-2391
Wayne Wise	7A	R.R. #7 Calgary, Alberta	273-3288
Roger Ohler	7B1	Stavely, Alberta	549-2299
Deanna Lee White	7B1	Box 369 Nanton, Alberta	646-2174
Darrel and Madeline Steeby	7B1	Box 95 Vulcan, Alberta	485-6881
Jacob Berger	7B1	Box 456 Nanton, Alberta	646-2197

Appendix A **Potentially Affected Landowners at Three Potential Reservoir Sites in the Little Bow River Basin** Concluded

Name	Reservoir Site	Address	Phone
William Gelden	7B1	Box 294 Nanton, Alberta	646-5502
Fred Reath	7B1	Vulcan, Alberta	897-2405
Alex Russell and Leona Whiteside	7B1	Box 55 Stavely, Alberta	549-3946
Hans and Judy Lievaart	7B1	2410 - 18 Street Nanton, Alberta	646-5508

APPENDIX B

Local Concerns Interview Guideline
Sample Copy

POTENTIAL WATER STORAGE IN THE LITTLE BOW RIVER

LOCAL CONCERNS INTERVIEW GUIDELINE

1.0 PERSONAL DATA

(Ensure that the landowner is aware of the purpose of the Little Bow Feasibility Studies and is familiar with the three potential reservoir sites.)

1. How many family members are dependent on your operation?

   _____ No. of Families concerned
   _____ No. of Children under age 7
   _____ No. of Children aged 7 to 17
   _____ No. of Adults aged 18 or over

2. How many individuals do you employ on your operation? _____

3. How many years have you lived in the area? _____

4. How many years have you lived at the present residence? _____

5. What areas do you farm?

   _____

   _____

6. What type of operation do you run?

   _____ Grain
   _____ Cattle
   _____ Hogs
   _____ Other: _____

7. Total size of operation: _____ acres

   Deed Land _____ acres
   Cultivated _____ acres
   Uncultivated _____ acres

   Leased Land _____ acres
   Cultivated _____ acres
   Uncultivated _____ acres

   Government Lease _____ acres
   Cultivated _____ acres
   Uncultivated _____ acres

8. Where does your family go for

Social Activities: _____

School: _____

Everyday Shopping Needs: _____

Repairs and Major Purchases: _____

2.0 POTENTIAL IMPACT OF RESERVOIR ON LANDOWNER

1. Which potential reservoir site most concerns you or is most relevant to your situation?

LB1 _____ 7B1 _____ 7A _____

2. Is your farmstead located at a potential reservoir site? _____

If nearby, how many miles? _____

If additional farmsteads, specify distances: _____

3. Would you have to or want to relocate if a potential reservoir project proceeded?

Yes No

4. What quantity of the following buildings or improvements would be affected by the potential reservoir?

_____ House
_____ Garage
_____ Barns
_____ Quanset Huts
_____ Shed
_____ Grainaries
_____ Lanes or Roads
_____ Creek Crossings
_____ Fences (No. of Miles _____)
_____ Corrals (No. of Cattle Served ____)
_____ Wells
_____ Developed Springs
_____ Dugouts
_____ Gardens
_____ Berry Patches
_____ Irrigation Pump Sites

5. How much of your land in each of the following categories could be potentially flooded by the proposed reservoir?

   Land for Hay/Sillage Production: _____ acres

   Land for Grain Production: _____ acres

   Pasture Land: _____ acres

   Total Flooded Land: _____ acres

6. Would the proposed reservoir affect your farming operation in any of the following ways:

   _____ reduce machinery access to portions of your farm

   _____ cause fragmentation of land

   _____ potentially reduce road access to opposite side of reservoir

   _____ loss of well water

7. Which of the above loss of buildings/improvements or changes would have the greatest impact on your farming operation?

   _____

8. Would you be forced to give up part of your farming operation if a reservoir was constructed nearest to your location?

   Yes No

   If yes, what part? _____

9. Do you use the potential reservoir site for other purposes besides irrigation? _____

   If so, would these activities be effected in a positive or negative way? _____

3.0 LANDOWNER VIEWS

1. Are you in favor of having a reservoir along the Little Bow River?

   Yes No

2. Are you in favor of having a reservoir built closest to you despite possible loss of land?

   Yes No

3. Who do you think would benefit most from the construction of a reservoir?

   _____

   _____

4. In which of the following ways will you and your family benefit from a potential reservoir?

_____ increased opportunity to irrigate

_____ increased recreation opportunity

_____ increased water availability for stockwatering and domestic use

_____ other: _____

5. In which of the following ways will your family suffer drawbacks from a potential reservoir?

_____ forced to relocate

_____ potential physical separation from neighbours

_____ potentially greater distances to school, stores, social events

_____ other: _____

6. In which of the following ways will the community benefit from a potential reservoir?

_____ increased economic growth

_____ more stable municipal water supply

_____ increased recreation potential

_____ other: _____

7. In which of the following ways will the community suffer drawbacks from a potential reservoir?

_____ physical separation of farmsteads

_____ reduced transportation routes

_____ other: _____

4.0 RESERVOIR USE

1. In which of the following ways do you hope to use the water from the reservoir:

_____ for irrigation

_____ for stockwatering

_____ for domestic use

_____ for recreational activities

_____ other (please specify: _____)

2. Rank the following water uses in order of their importance:

_____ irrigation
_____ stockwatering/domestic use
_____ municipal water supply
_____ recreation development
_____ wildlife utilization

3. What type of recreational development along the proposed reservoir would be acceptable to you?

_____ Private Cottage
_____ Country Residences
_____ Public Day-Use/Picnic Grounds
_____ Public Campgrounds
_____ Private Campgrounds
_____ Boat Launch
_____ Marina
_____ No Development

4. Which of the following levels of recreation development would be acceptable to you?

_____ No Recreation Development
_____ Small Development (Local Users Only)
_____ Intermediate Development (Local Users and Regional Users)
_____ Large Development (Local, Regional, and Urban Users)

5. Do you feel that recreational development can occur without jeopardizing irrigation at the reservoir?

Yes No

6. Which of the following would pose a significant problem related to recreation development along the reservoir?

Signif.	Not Signif.	
_____	_____	Reduction in Water Quality
_____	_____	Increased Public Access to Shoreland
_____	_____	Landowner/Recreational Conflicts (Trespassing, Vand.)
_____	_____	Increased Local Traffic
_____	_____	Conflicts with Wildlife
_____	_____	Pollution from Sewage Disposal

7. Which of the following would pose a significant benefit related to recreation development along the reservoir?

Signif.	Not Signif.	
_____	_____	Increased Recreational Benefit for Local People
_____	_____	Increased Spending by Tourists in Region
_____	_____	Increased Local Employment

5.0 PROJECT IMPLEMENTATION

1. When do you think construction should begin? _____

2. When do you think construction will begin? _____

3. Would you prefer to have construction on-going year-round or during any specific seasons (i.e. to increase employment opportunity, to decrease disturbance to farm operation, etc.)

_____

4. Prior to constructing the dam, the provincial government will need to acquire lands in a small strip around the reservoir up to what is called the take-line (approximately top of dam). In the construction of other reservoirs the government has purchased additional lands around the reservoir up to the nearest quarter section line. Would you prefer to have the government buy the land to the quarter section or would you prefer to own the land to the take-line (approximate top of dam).

_____